OASIS
Distributed Testing

Frank Knight
Operational Test Command
ATEC Test Technology Symposium
26 June 2003

OASIS Mission

To provide an integrated suite of instrumentation and simulation/stimulation (ISS) systems for operational testing, experimentation, and evaluation in support of Army Transformation.

OTC Analytic Simulation and Instrumentation Suite

Test Environments & Integration

K **Instrumentation, Simulation and Stimulation (ISS) for realistic operational test environments.**

K **Synthetic Environment Lab (SEL) for integration of ISS into a collaborative and distributed environment.**

K **ATEC-identified OT link to FCS Synthetic Integration Lab (SIL) and Advanced Collaborative Environment (ACE), RDECOM's MATREX, and others.**

K **Integrates OT facilities for system of systems testing.**

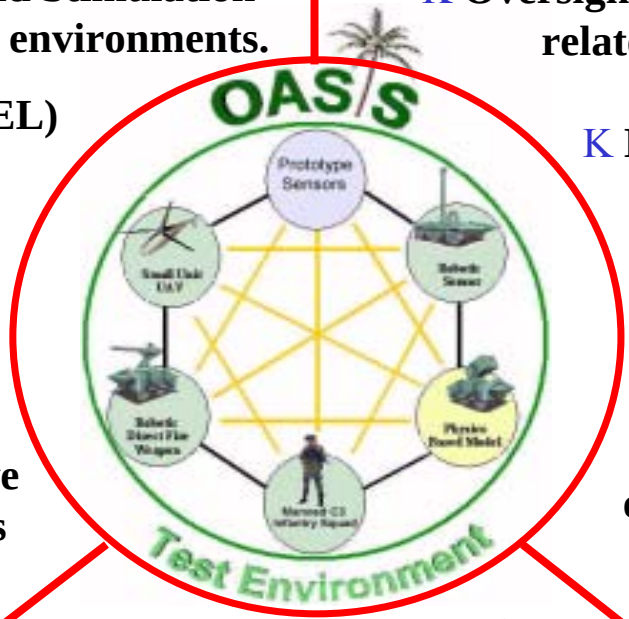
Requirements Management

K **Oversight of OT CAPSTONE effort for all related ISS developments.**

K **Management process to identify Objective Force and Future Combat System test technology requirements.**

K **Program management partnership with materiel developer (STRICOM PM ITTS).**

K **Develops entity state resolution for OT environments.**



K **Engineering support for requirements analysis, technical evaluations, analysis of alternatives, and market surveys.**

K **Life cycle management of OT technologies.**

Engineering & Sustainment

Purpose of OASIS

- **Stimulate Systems Under Test**
  - **Live-Virtual-Constructive/Real-time**
  - **Realistic Loading**
- **Stimulate Units Under Test**
  - **Provide wrap-around environments**
  - **Stimulate UUT to utilize systems under test**
- **Provide Realism**
  - **Real-Time Casualty Assessment**
  - **Weather/Terrain/Commo Effects**
  - **Simulate (virtual & constructive) other-than-live systems / units / behaviors**
- **Integrated Data Collection/Transfer/Analysis**

Modeling and Simulation

OASIS Architecture Components

- Scenario Development/Generation
- C4 Simulation/Stimulation
- ISR Simulation/Stimulation
- Fire Control/Fire Support Simulation/Stimulation
- Synthetic Environment Modeling (weather/terrain)
- Real-Time Casualty Assessment
- Test Planning & Rehearsal
- Test Control
- Data Collection
- Data Transfer
- Data Management
- Data Analysis
- Non-combatant modeling
- Logistics Simulation/Stimulation

Major OASIS Tools (Sim/Stim)

- **STORM - Designed for FBCB2 tests, provides Blue Situational Awareness and C2 to the Lower TI**
  - **Simulation Training Operations Rehearsal Model**
- **IMASE - Designed to provide the threat based multi-spectral environment, provides ISR test capability platform to Corps**
  - **Intelligence Modeling and Simulation for Evaluations**
- **ExCIS-FSA - Designed for fire support tests, emulates and stimulates Corps level indirect fires**
  - **Extensible C4I Instrumentation System, Fire Support Application**
- **CEES/MFMS - Designed for ADA system tests**
  - **C3I Engineering Evaluation System / Mobile Flight Mission Simulator**

Other OASIS Federates

- **Janus, JCATS - Provides Situational Awareness and C2 to the Lower TI (Brigade and below)**
- **Corp Battle Simulation, EAGLE - Provides the SA and C2 for the Upper TI (Brigade and above)**
- **OTB, OneSAF – Will provide SA and C2 for FCS UA**
- **RDECOM MATREX – Components may be used within the operational test environment** *(future)*
- **DTC Tools – SEIT, STARSHIP, STARGEN, ORION, and others**

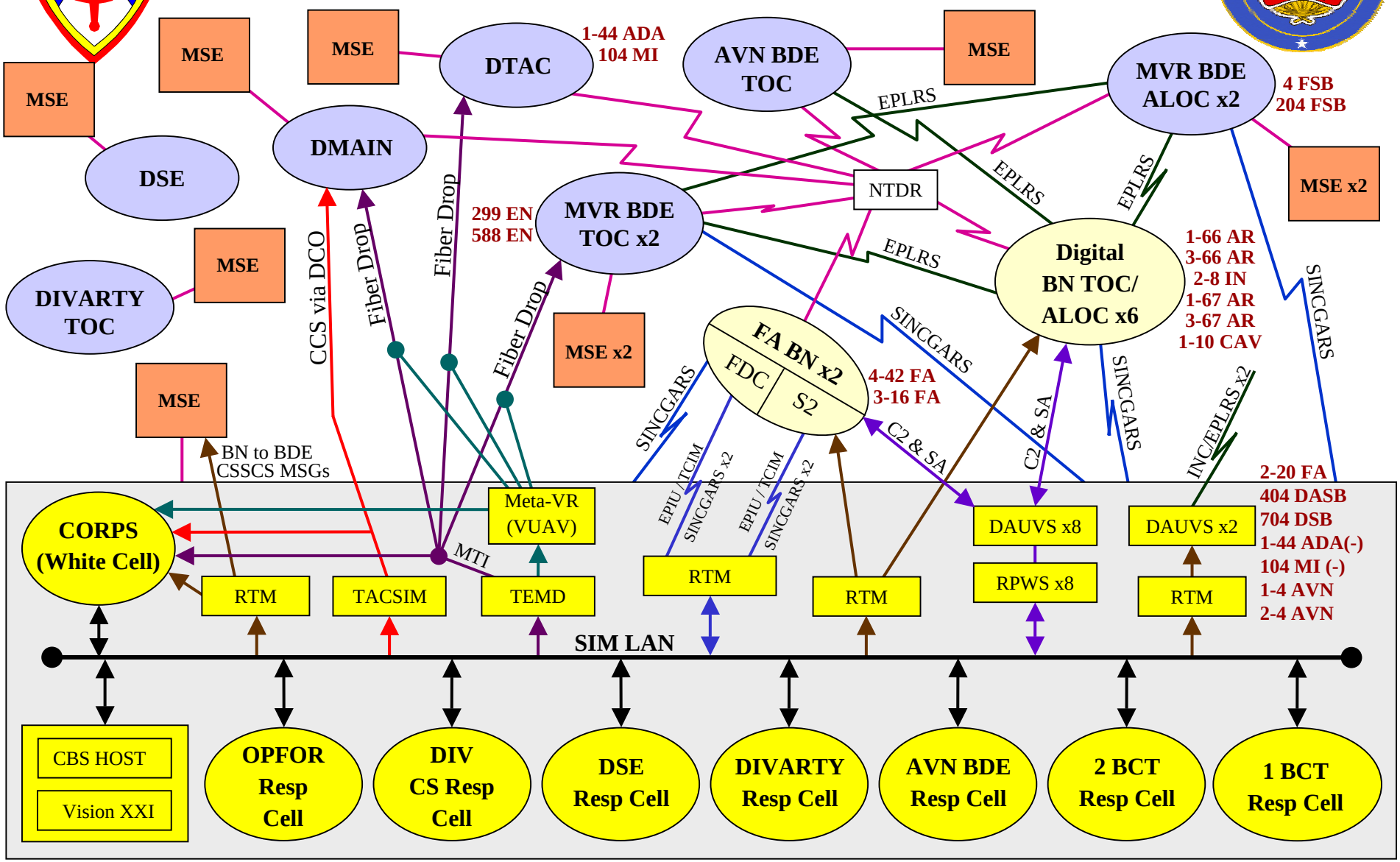
Instrumentation

Major OASIS Tools (Instrumentation)

- **MAIS - Provides RTCA, Position Location. Serves as the link between Simulations and Live players**
  - **Mobile Automated Instrumentation System**
- **CVII - "Plug and play" suite of vehicular data recording instrumentation. AV, Data bus, etc.**
  - **Common Vehicular Instrumentation Initiative**
- **Objective RTCA - Future initiative for "laserless" RTCA based on geometric pairing**
  - **Objective Real Time Casualty Assessment Instrumentation System**
- **IFDC/MFDC/VFDC - Generational Field Data Collectors. Major component of CVII**
  - **Improved, Mobile, and Vehicle Field Data Collectors**

Distributed Testing

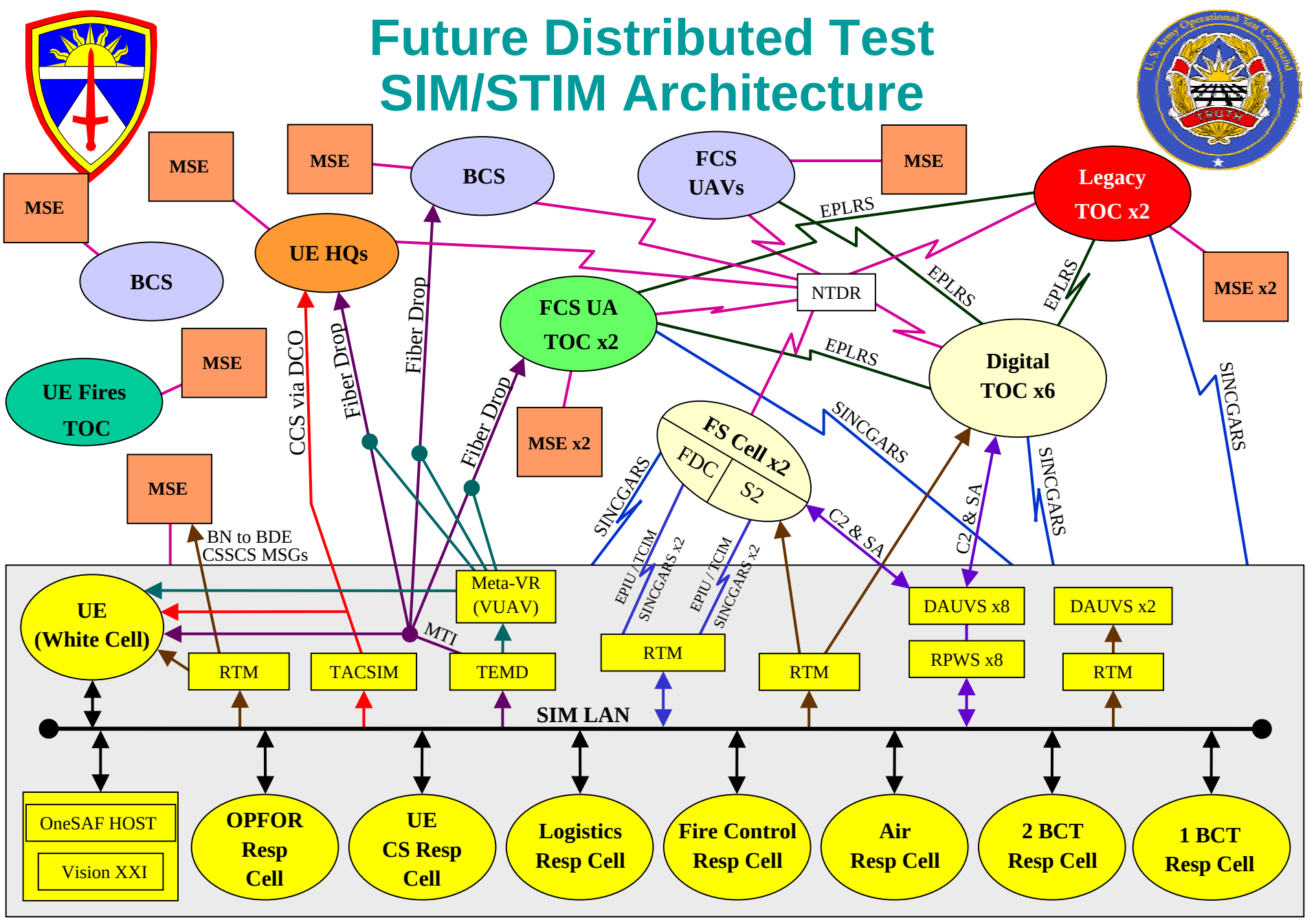
FBCB2/MCS/ISYSCON(V4) IOT PH III
SIM/STIM Architecture



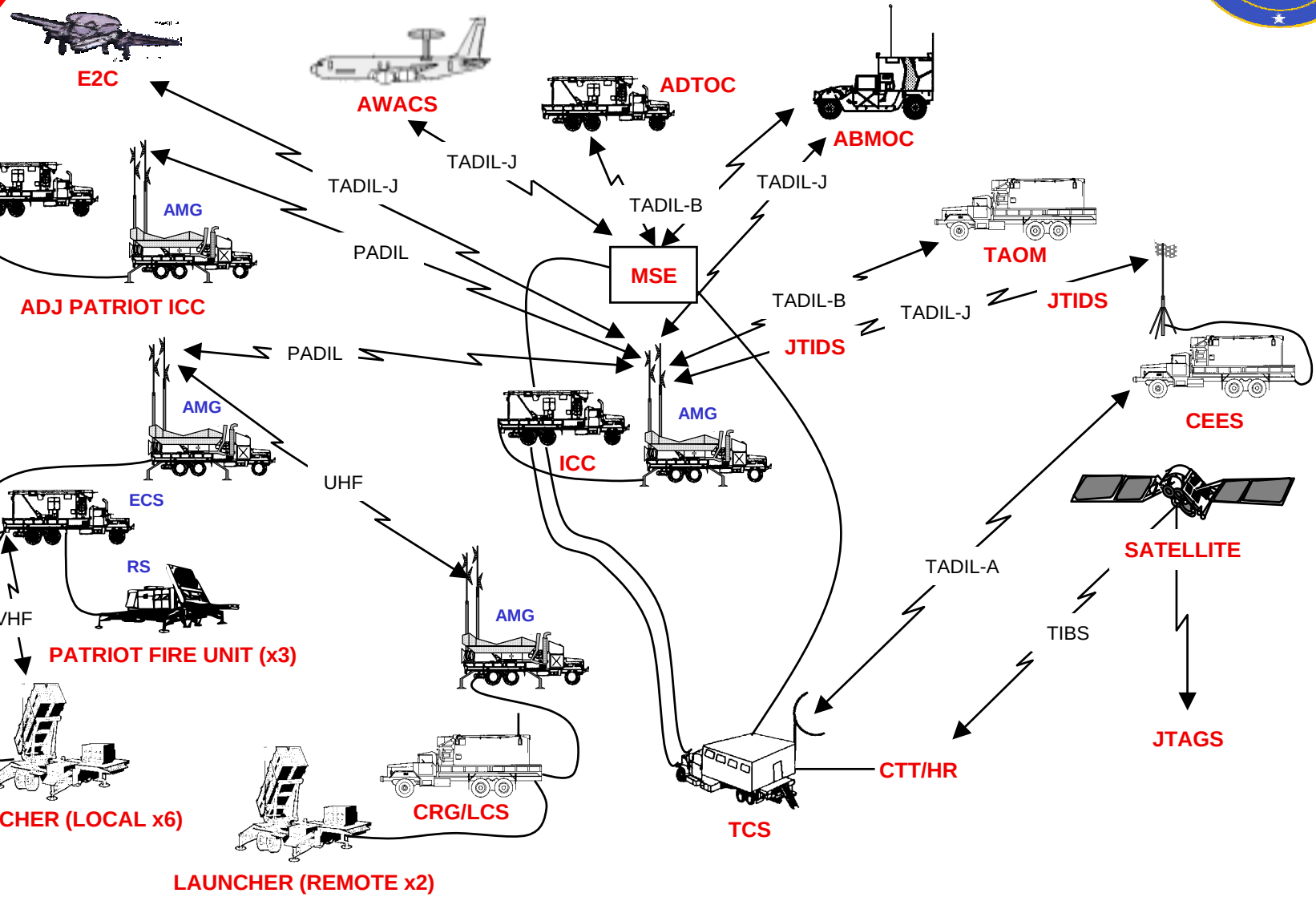
Operational Test Command

Yellow = Inside the BSC, Blue = In the Field, Other = On pad outside the BSC

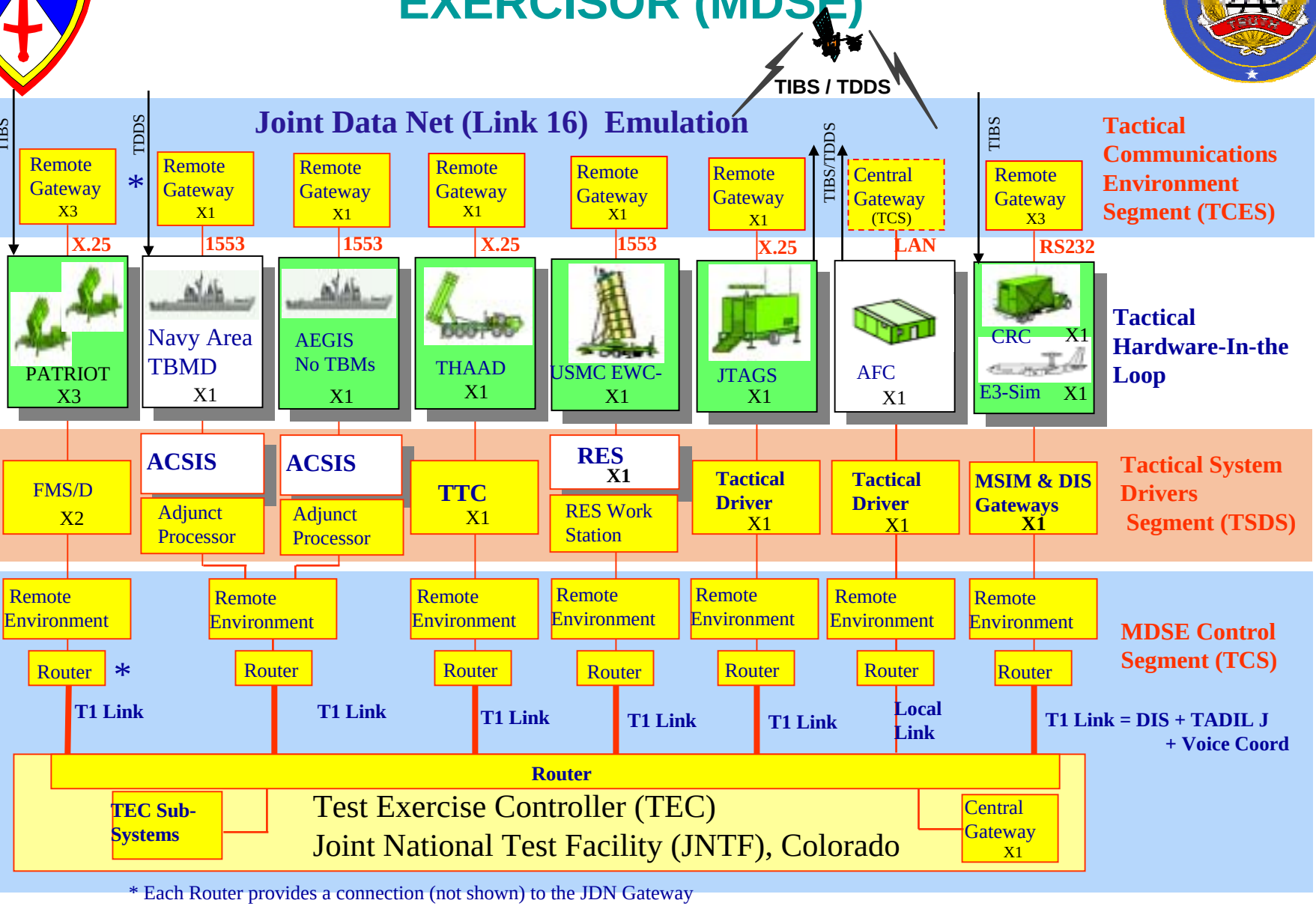
Future Distributed Test SIM/STIM Architecture



PAC-3 Configuration-3 IOTE Communications Links

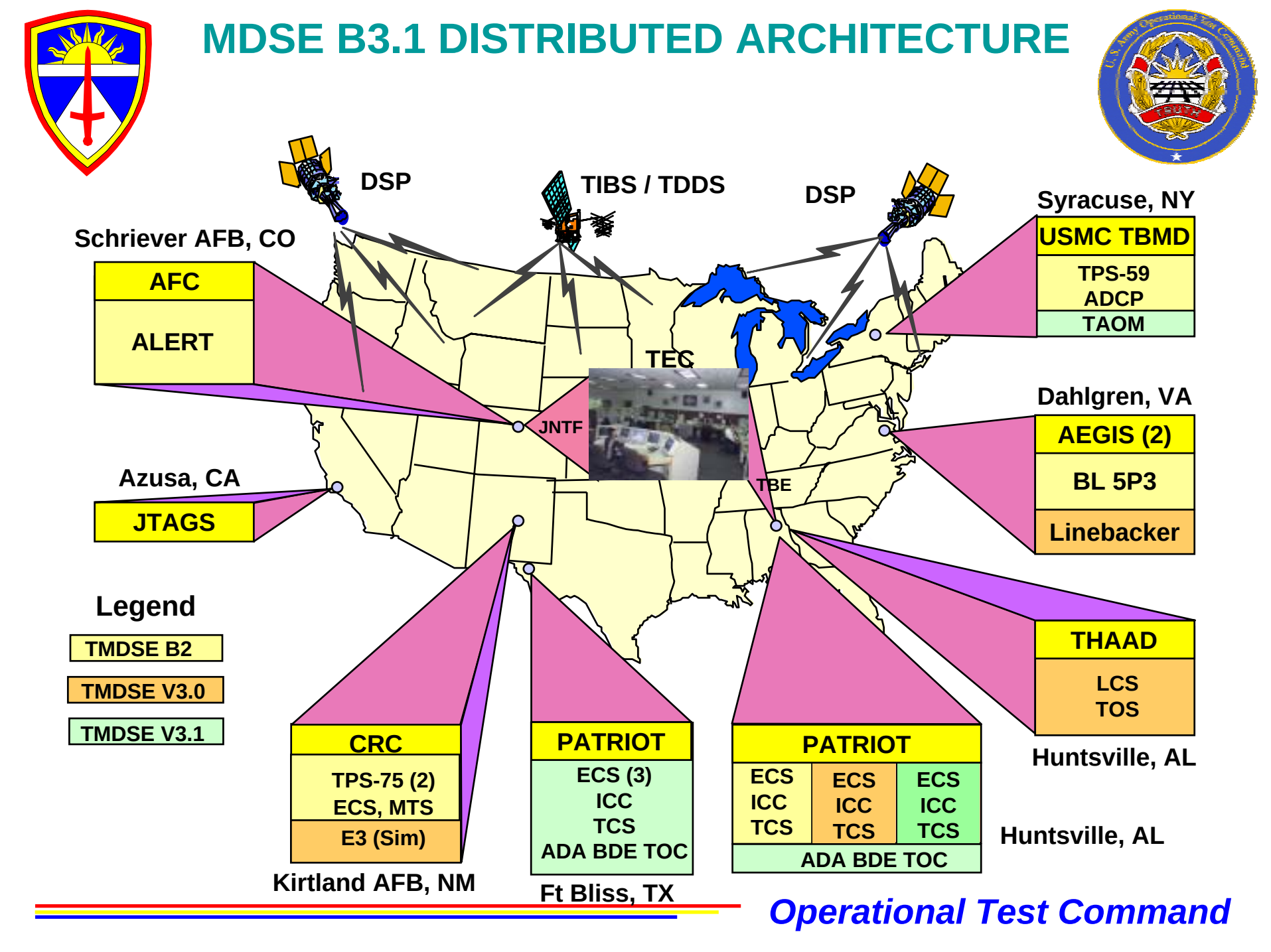


MISSILE DEFENSE SYSTEM EXERCISOR (MDSE)

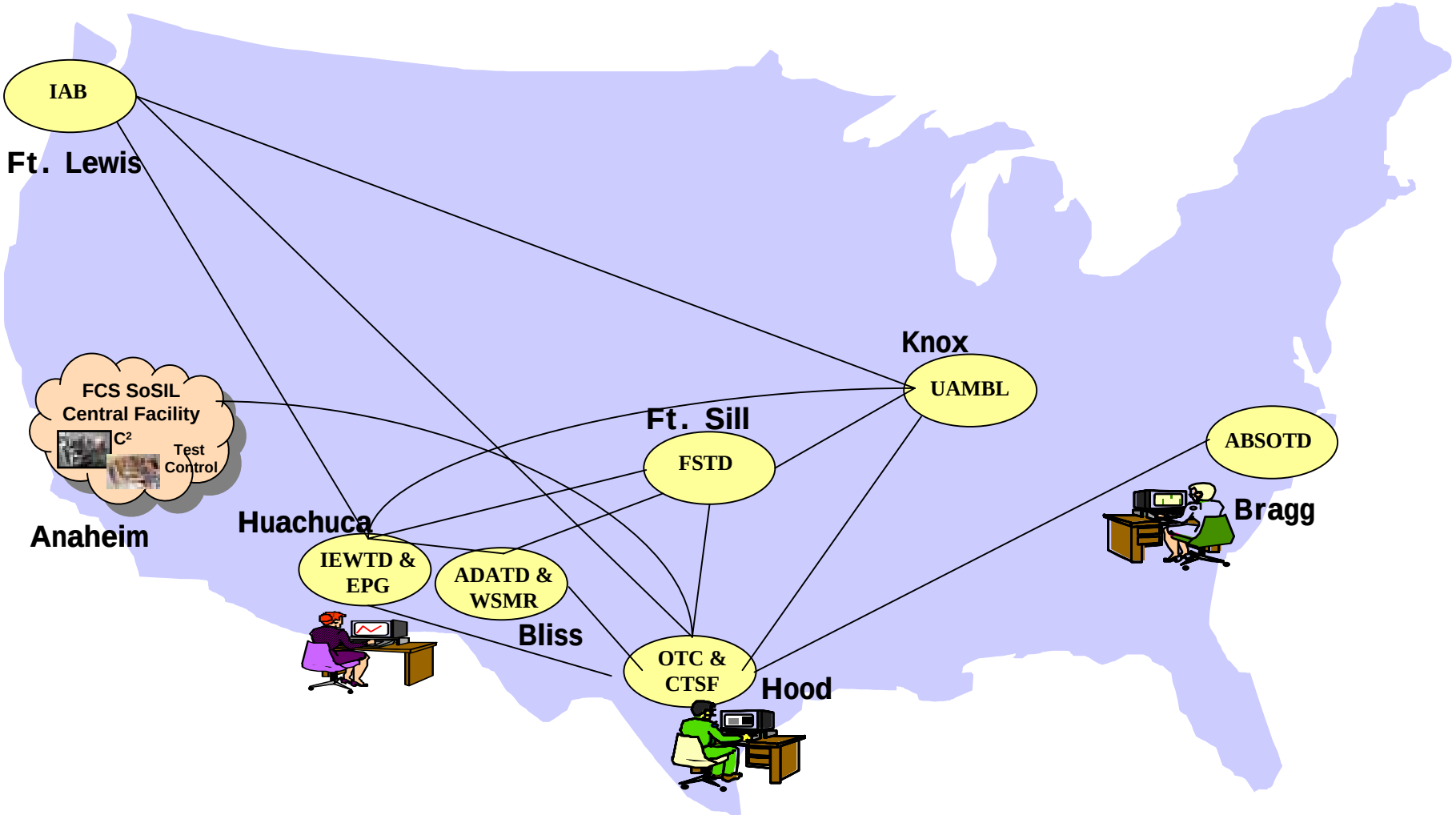


Operational Test Command

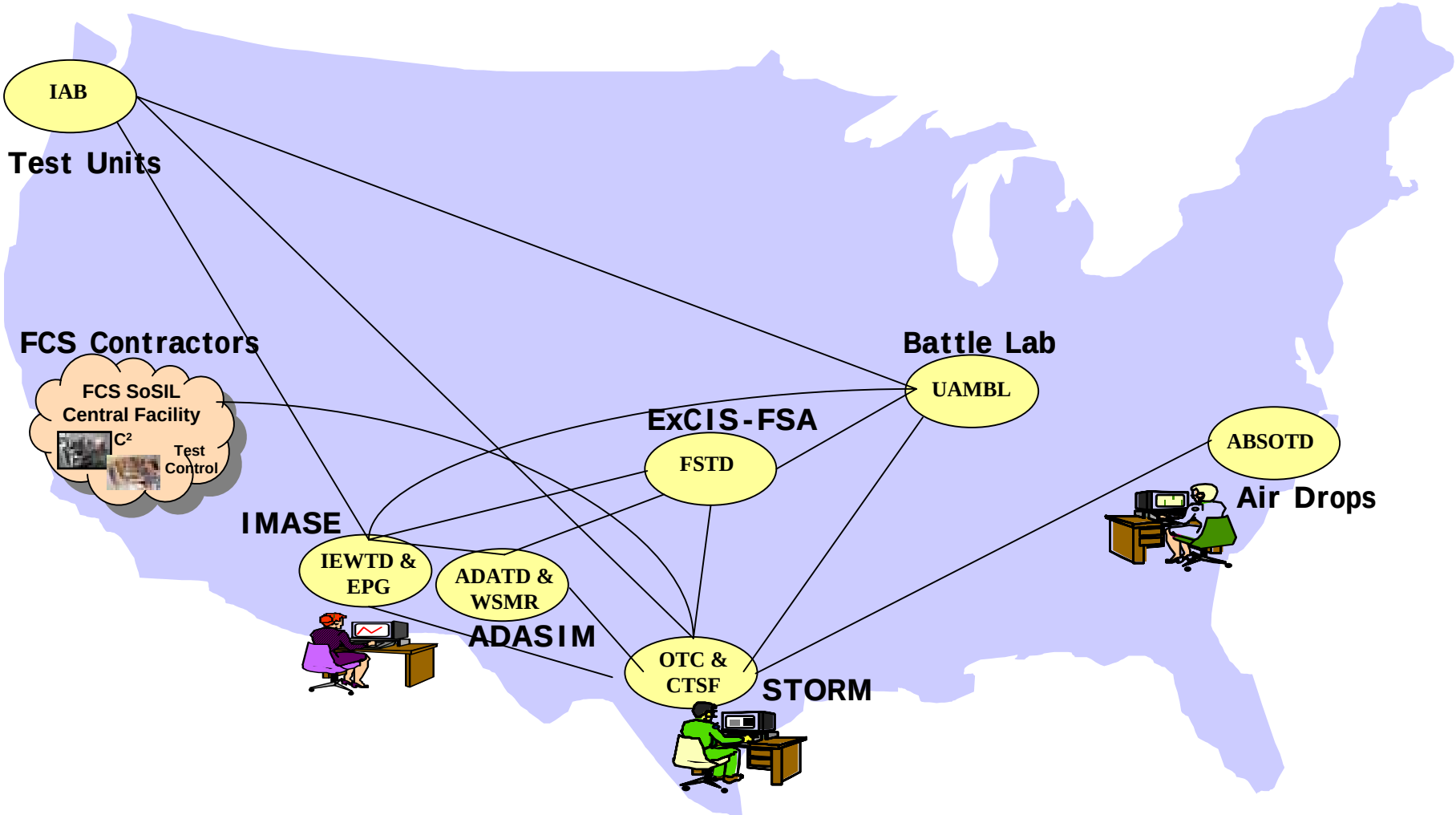
MDSE B3.1 DISTRIBUTED ARCHITECTURE



OTC Distributed Testing Locations in ATIN

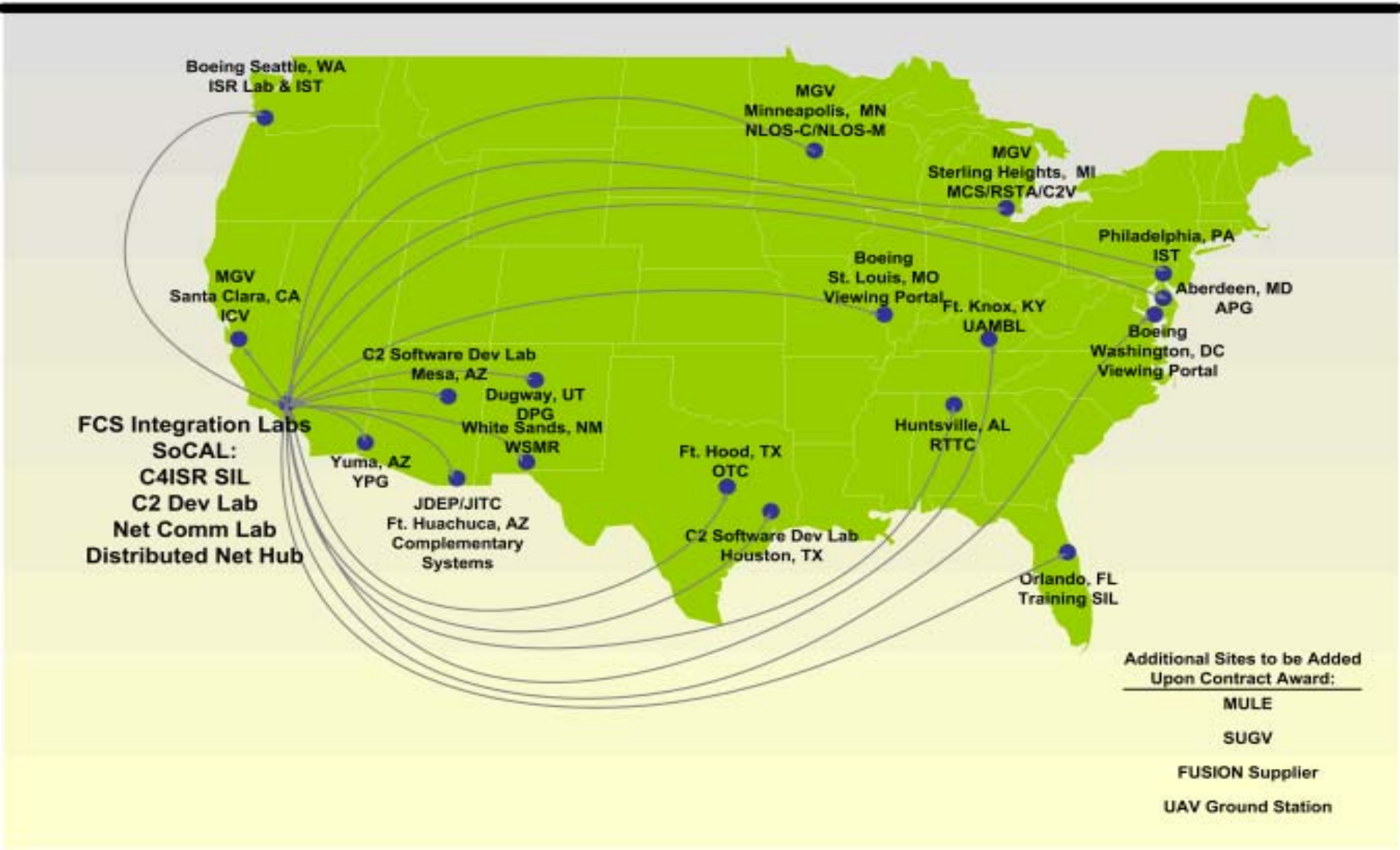


OTC Distributed Testing Simulations



FUTURE COMBAT SYSTEMS
FCS
One Team – The Army/DARPA/Industry

SoSIL NETWORK



SUMMARY

• OASIS provides a roadmap and organizational structure for successful OT support of future programs in partnership with DTC, FCS LSI, OneSAF, RDECOM and others.

• OASIS provides an integration framework and facility (the SEL) for capability and asset leveraging.

• Distributed operational testing has been accomplished in multiple tests.

• Distributed testing on the order of magnitude needed for future testing poses significant technological challenges.

Questions?